



MTH601: Quiz 3



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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

In the Simplex method to solve an LP problem of minimization, if at the end of an iteration, there is a positive coefficient in the objective row then the given problem

Select the correct option

- | | | |
|----------------------------------|---------------------------|---|
| ☐ | needs further improvement |  |
| ☒ | cant be optimized |  |
| ☐ | has no solution |  |
| ☐ | has been maximized |  |

(CHAPTER No.4 Pg.87)

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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

While solving an LP problem by the Simplex method, in the standard table, the element at the intersection of key column and key row is called _____ element.

Select the correct option

- | | | |
|----------------------------------|----------|---|
| ☐ | Entering |  |
| ☐ | Leaving |  |
| ☐ | Slack |  |
| ☒ | Pivot |  |

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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

If initial basic solution is _____ while solving an LP problem then no further iteration can be performed.

Select the correct option

- | | | |
|----------------------------------|----------------|---|
| ☐ | degenerate |  |
| ☐ | non-degenerate |  |
| ☐ | feasible |  |
| ☒ | infeasible |  |

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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

In two phase method, for the phase-I, if the objective function in terms of artificial variables is not minimized then the given problem has _____

Select the correct option

- | | | |
|----------------------------------|---------------------|---|
| ☐ | Feasible solution |  |
| ☐ | Optimal solution |  |
| ☒ | Infeasible solution |  |
| ☐ | Degeneracy |  |

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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

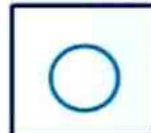
In the Simplex method to solve an LP problem of maximization, if at the end of an iteration, there is a negative coefficient in the objective row then the given problem

Select the correct option



needs further improvement

(CHAPTER No.4 Pg.87)



cant be optimized



has no solution



has been maximized



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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

In an LP problem, to evaluate the basic variables in Simplex method, which of the following method is used?

Select the correct option

- | | | |
|----------------------------------|---------------------------|---|
| ☐ | Gauss Elimination method |  |
| ☒ | Gauss-Jordan method |  |
| ☐ | Gauss Least Square method |  |
| ☐ | Gauss-Seidel method |  |

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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

In two method, for the phase-I, a new objective function in terms of artificial is to be

Select the correct option



maximized



minimized

(CHAPTER No.4 Pg.101)



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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

While solving an LP by two phase method, an objective function of 1st phase is always of

Select the correct option

- | | | |
|----------------------------------|--|---|
| ☐ | maximization |  |
| ☐ | dependent on original objective function |  |
| ☒ | minimization |  |
| ☐ | None of these |  |

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

In two phase method process, first phase _____ the sum of artificial variables.

Select the correct option

- | | | |
|----------------------------------|---|---|
| ☐ | maximize |  |
| ☐ | maximize or minimize depending on the situation |  |
| ☒ | minimize |  |
| ☐ | None of these |  |

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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

Which of the following difficulty may found while attempting an LP problem by M-method?

Select the correct option

- | | | |
|----------------------------------|--|---|
| ☐ | It often leads to infeasible solution |  |
| ☒ | Computational error due to large value of M (CHAPTER No.4 Pg.100) |  |
| ☐ | Degeneracy is inevitable |  |
| ☐ | Artificial do not leave the basis |  |

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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

For finding the maximum profit in an enterprise of selling two products such that 'freezing' the sale of one product and keep selling the other. This scenario is studied under _____

Select the correct option

- | | | |
|----------------------------------|-------------------------------|---|
| ☐ | Un-boundedness |  |
| ☒ | Degeneracy |  |
| ☐ | Duality |  |
| ☐ | Artificial variable technique |  |

CONCEPTUAL QUESTION (CHAPTER No.4 Pg.106)

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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

In two phase method, which of the following will be taken as starting solution for 2nd phase?

Select the correct option

- | | | |
|----------------------------------|---|---|
| ☐ | Non-basic solution of 1 st phase containing non-negative slacks |  |
| ☐ | Optimum feasible solution of 1 st phase |  |
| ☐ | infeasible solution of 1 st phase |  |
| ☒ | Basic solution of 1 st phase containing non-zero artificial variables
(CHAPTER No.4 Pg.101) |  |

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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

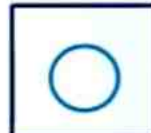
A Linear Programming problem may not have any feasible solution.

Select the correct option



True

(CHAPTER No.4 Pg.82)



False



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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

In the final iteration of M-method to obtain the optimal solution, the artificial variable must _____ the basis.

Select the correct option

- | | | |
|----------------------------------|--------------------------------|---|
| ☐ | add in each variable of |  |
| ☐ | subtract from each variable of |  |
| ☒ | leave |  |
| ☐ | include in |  |

(CHAPTER No.4 Pg.95)

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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

In a feasible region, if the end points of the line segment are basic solutions, then all the points between these two will _____

Select the correct option

- | | | | |
|----------------------------------|-------------------|-------------------------|--|
| ☒ | be optimal | (CHAPTER No.4 Pg.82,83) | |
| ☐ | also be the basic | | |
| ☐ | be non basic | | |
| ☐ | be infeasible | | |

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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

Under which of the following condition to solve an LP by using two phase method, we can't proceed for 2nd phase?

Select the correct option



Objective function of 1st phase has zero value



Objective function of 1st phase has positive value

(CHAPTER No.4 Pg.101)



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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

In two method, for the phase-I, a new objective function in terms of artificial is to be

Select the correct option

- | | | |
|----------------------------------|-----------|---|
| ☐ | maximized |  |
| ☒ | minimized |  |
| ☐ | |  |
| ☐ | |  |

(CHAPTER No.4 Pg.101)

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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

While solving a LP problem by Simplex method in a given iteration, the new basic variable is ----- and the variable remove from the basis is called -----

Select the correct option

- | | | |
|----------------------------------|------------------------|---|
| ☐ | (feasible, infeasible) |  |
| ☐ | (infeasible, feasible) |  |
| ☒ | (entering, leaving) |  |
| ☐ | (leaving, entering) |  |

(CHAPTER No.4 Pg.84)

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

Once an LP problem is converted to a table, then calculation steps would be same for _____ method(s).

Select the correct option

☐	Big B	
☐	Two phase	
☐	simplex	
☒	all of above	

Check all Tables Pg.86, 96, 102)

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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

In the Simplex method to solve an LP problem of minimization, if at the end of an iteration, there is a positive coefficient in the objective row then the given problem

Select the correct option

- | | | |
|----------------------------------|---------------------------|---|
| ☐ | needs further improvement |  |
| ☒ | cant be optimized |  |
| ☐ | has no solution |  |
| ☐ | has been maximized |  |

(CHAPTER No.4 Pg.88)

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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

In two phase method, for the phase-I, if the given problem has feasible solution then

Select the correct option



objective function is zero but artificial may arbitrary



both objective function and artificial are zero

(CHAPTER No.4 Pg.101)



objective function is arbitrary but artificial is zero



both objective and artificial can have arbitrary values



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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

The cost coefficient of artificial variable in Objective function is _____

Select the correct option

☐

0

☐

1

☐

> than 1

☒

M

Conceptual Question (CHAPTER No.4 Pg.94)



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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

Which of the following is true about the inclusion of non-negative slack variable into a constraint of type 'less than or equal'?

Select the correct option

- | | | |
|----------------------------------|---|---|
| ☐ | This inclusion does not affect the inequality |  |
| ☐ | Inequality is transformed into type greater than or equal |  |
| ☐ | Inequality become redundant and hence skips from the LP problem |  |
| ☒ | Inequality is transformed into strict equality constraint |  |

(CHAPTER No.4 Pg.83)

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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

While solving a Linear Programming problem by Simplex Method, an inequality constraint is transformed into strict equality by the inclusion of _____ variables.

Select the correct option

- | | | |
|----------------------------------|------------|---|
| ☐ | decision |  |
| ☐ | artificial |  |
| ☒ | slack |  |
| ☐ | basic |  |

(CHAPTER No.4 Pg.94)

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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

In a feasible region, if the end points of the line segment are basic solutions, then all the points between these two will _____

Select the correct option



be optimal

(CHAPTER No.4 Pg.82,83)



also be the basic



be non basic



be infeasible



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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

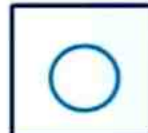
In Simplex method to solve an LP problem, Gauss Jordan Elimination method demands that all the key column entries should be _____ except key row(pivot) entry.

Select the correct option



zero

(CHAPTER No.4 Pg.87)



strictly negative



maximum or minimum



strictly positive



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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

In two method, for the phase-I, a new objective function in terms of artificial is to be

Select the correct option

- | | | |
|----------------------------------|-----------|---|
| ☐ | maximized |  |
| ☒ | minimized |  |
| ☐ | |  |
| ☐ | |  |

(CHAPTER No.4 Pg.101)

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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

In the initial table of Simplex method, the objective function should not contain the terms involving _____ variables.

Select the correct option

- | | | |
|----------------------------------|------------|---|
| ☐ | Artificial |  |
| ☐ | Degenerate |  |
| ☒ | Basic |  |
| ☐ | Non basic |  |

(CHAPTER No.4 Pg.94)

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

While solving an LP problem by Simplex method, the inclusion of slacks in the constraints' inequalities helps in finding _____ variables.

Select the correct option

- | | | |
|----------------------------------|------------|---|
| ☐ | decision |  |
| ☐ | basic |  |
| ☐ | non-basic |  |
| ☒ | artificial |  |

(Chapter No.4 Pg.94)

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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

While solving a Linear Programming problem by Simplex Method, an inequality says: ' $2x - 3y < 5$ ' is transformed into strict equality of the form _____, where ' $s \geq 0$ '.

Select the correct option

- | | | |
|----------------------------------|--|---|
| ☐ | $2x - 3y - s = 5$ |  |
| ☒ | $2x - 3y + s = 5$
(Check examples Chapter No.4 Pg.109, 110) |  |
| ☐ | $2x - 3y - s + A = 5$ |  |
| ☐ | $2x - 3y + s + A = 5$ |  |

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